

Amendments to the Specification:

Please amend the specification as follows:

Delete the paragraph bridging Pages 13 and 14 and insert therefore the following:

The spacer grid for nuclear reactor fuel assemblies according to the present invention is used in the reactor fuel assembly 101 of FIG. 1. Particularly, the spacer grid of the present invention is preferably used in a pressurized water reactor fuel assembly. As shown in FIGS. 4, 5A, 5B, 7A and 7B, the spacer grid of the present invention designated by the reference numeral 10 includes a plurality of perimeter strips (40) each of which is fabricated with a plurality of unit intermediate strips 40' to encircle the intersecting inner strips 30 and two unit corner strips 41 40" to form the outermost corner cells of the spacer grid 10. Throughout this application, the unit intermediate strips 40' and the unit corner strips 40" may be referred to briefly, i.e. as the unit strip 40' and 40" respectively, for convenience. The perimeter strips 40 have a grid spring 50 on each of the unit intermediate strips 40' and the unit corner strips 41 40" thereof. The grid spring 50 is designed to be equiangular with a longitudinal fuel rod 125, so that the grid spring 50 is in equiangular surface contact with the fuel rod 125, and to effectively support the maximum load, and to accomplish the soundness of the reactor fuel assembly. In the perimeter strips 40, each of the unit intermediate strips 40' has both a coolant flow guide vane 57 and a guide tap 58, while each of the unit corner strips 41 40" has either the guide vane 57 or the guide tap 58.

Delete the paragraph bridging Pages 14, 15 and 16 and
insert therefore the following:

The spacer grid 10 of the present invention has four guide tube cells 15 to respectively place and support four guide tubes 13 in the spacer grid 10, and a plurality of fuel rod cells 26 to place and support a plurality of fuel rods 125 in the spacer grid 10. The fuel rod cells 26 include inner and outer cells, and each support a fuel rod 125 by a plurality of grid springs 20, 50, regardless of the inner and outer cells. The inner cells further have a plurality of dimples 29 to support the fuel rods 125, in cooperation with the grid springs 20. In the spacer grid 10, the four guide tubes 13 are welded to the four guide tube cells 15, respectively, and a measuring tube 14 is supported in a measuring tube cell provided at the center of the spacer grid 10, as shown in FIGS. 5A and 5B. The expected coolant flow pattern in the spacer grid 10 is shown in FIG. 5A. During an operation of a nuclear reactor, the coolant must flow from neighboring spacer grids into the spacer grid 10 through inward paths and, at the same time, must flow from the spacer grid 10 to the neighboring spacer grids through outward paths, as shown by the arrows 51 61 of FIG. 5A. To accomplish the above-mentioned expected coolant flow pattern, the spacer grid 10 must be designed to generate inward and outward cross flows of the coolant between the spacer grid 10 and the neighboring spacer grids, by controlling the sizes and angles of a plurality of mixing blades of the inner cells and a plurality of mixing vanes of the outer cells such that the mixing blades and the mixing vanes smoothly guide the inward and outward cross flows of the coolant, without disturbing the cross flows of the coolant. Therefore, each of the perimeter strips of the spacer grid 10 according to the present invention has a plurality of guide vanes 57 and a plurality of guide taps 58, such that the guide vanes 57 and the guide taps 58 are alternately arranged along an upper edge of each of the perimeter strips. The above-mentioned alternate arrangement of the guide vanes 57 and the guide taps 58 is determined as follows. That is, as shown in

FIG. 11 which shows the flows of the coolant relative to the spacer grid 10 analyzed and expressed in the form of vectors, the coolant flow pattern in the outside subchannels each of which is defined between four neighboring fuel rods 125 placed around the perimeter strips in the spacer grid 10 is determined such that the outward cross flows of the coolant and the inward cross flows of the coolant alternately appear in the outer cells of the spacer grid 10. Therefore, some outer cells of which the subchannels have the outward cross flows of the coolant must have the guide taps 58 which have a smaller size capable of being free from disturbing the outward cross flows of the coolant, while the remaining outer cells of which the subchannels have the inward cross flows of the coolant must have the guide vanes 57 which have a larger size than the guide taps 58, thus guiding the coolant flowing upward through the spacer grid 10 to make the coolant flow toward the center of the spacer grid 10. As shown in FIG. 5B, the guide vanes 57 are bent toward the center of the spacer grid 10, and the width of each of the guide vanes 57 reduces from a position at which the guide vane 57 is initially bent, thus the guide vane 57 has a rapidly tapered shape, with the peak of the guide vane 57 being rounded. Each of the guide taps 58 is bent toward the center of the spacer grid 10, and is rounded at the bent tip thereof to form an arc-shaped edge.

Delete the paragraph bridging Pages 18 and 19 and insert therefore the following:

FIG. 7A is a perspective view showing an inside surface of the unit intermediate strip 40' constituting the perimeter strips 40 of the spacer grid 10 of FIG. 4, and FIG. 7B is a perspective view showing an outside surface of the unit corner strip 41 40" constituting the perimeter strips 40 of the spacer grid 10. As shown in FIGS. 7A and 7B, the above-mentioned design of the inner cell grid springs 20 is adapted to the perimeter strips of

the present invention. That is, the double bridge-type simple beam structure of the inner cell grid springs 20 is remodeled into a single bridge-type structure, thus producing the outer cell grid spring 50 which is used in the perimeter strips of the spacer grid 10 of FIG. 4. Due to the single bridge-type outer cell grid spring 50, the spacer grid 10 efficiently supports the fuel rods 125 in the outermost cells thereof including the outermost corner cells which have a narrow width, with the grid springs 50 of the outermost corner cells being in equiangular surface contact with the fuel rods 125. To form the single bridge-type outer cell grid spring 50 on each of the unit strips 40 40' and 41 40" of the perimeter strips 40 according to the present invention, a vertical opening 53 is formed at the central area of each unit strip 40 40', 41 40" of the perimeter strips 40, with a vertical support part 51 comprising a single bridge extending vertically between the central portions of the top and bottom edges of the vertical opening 53. The vertical support part 51 is bent at two steps. A fuel rod support part 52 is provided at the central portion of the vertical support part 51. The fuel rod support part 52 has a conformal support surface which is specifically bent to have an outward rounded cross-section with the same radius of curvature as that of the fuel rod 125, thus being brought into equiangular surface contact with the external surface of the fuel rod 125. Such a conformal support surface of the fuel rod support part 52 is suitable for accomplishing a desired uniform contact pressure distribution of the fuel rod support part 52. In the present invention, the equiangular surface contact of the outer cell grid spring 50 with the fuel rod 125 means that the contact surfaces of the grid spring 50 and the fuel rod 125 are rounded in the same direction so that the centers of curvature of the contact surfaces of the grid spring 50 and the fuel rod 125 are

placed at the same side of the contact surfaces. However, when two contact surfaces are in contact with each other, with the centers of curvature of the two contact surfaces being placed at opposite sides of the contact surfaces, the contact is so-called a "non-equiangular contact".